

We claim:

1. A toxin removal device for use in an extracorporeal circuit comprising:
activated charcoal and at least one non-ionic exchange resin.
2. The toxin removal device according to claim 1 where in said non-ionic exchange resin comprises a non-ionic aliphatic ester resin or a non-ionic polystyrene divinyl benzene resin.
3. The toxin removal device according to claim 2 wherein said non-ionic aliphatic ester resin has an average surface area of approximately 500 m²/g and an average pore size of approximately 450 Angstroms and a mean diameter of 560 µm.
4. The toxin removal device according to claim 3 wherein said non-ionic aliphatic ester resin is known commercially as Amberlite™ XAD-7HP.
5. The toxin removal device according to claim 4 wherein said non-ionic polystyrene divinyl benzene resin has an average surface area of approximately 700 m²/g with an average pore size of 300 Angstroms and a mean particle diameter from approximately 35 µM to approximately 120 µM.
6. The toxin removal device according to claim 5 wherein said non-ionic polystyrene divinyl benzene resin is known commercially as Amberchrom™ GC 300C.
7. The toxin removal device according to claim 1 wherein said charcoal comprises uncoated coconut shell granule charcoal.
8. The toxin removal device according to claim 1 further comprising at least one particle filter downstream of said toxin removal device in said extracorporeal circuit.

9. A toxin removal device for use in an extracorporeal circuit comprising:
 - activated charcoal and a non-ionic exchange resin selected from the group consisting of non-ionic aliphatic ester resin or a non-ionic polystyrene divinyl benzene resin.
10. A toxin removal device for use in an extracorporeal circuit comprising:
 - activated charcoal and a non-ionic exchange resin, non-ionic aliphatic ester resin and a non-ionic polystyrene divinyl benzene resin.
11. The toxin removal device according to claim 9 or 10 wherein said non-ionic aliphatic ester resin has an average surface area of approximately 500 m²/g and an average pore size of approximately 450 Angstroms and a mean diameter of 560 µm.
12. The toxin removal device according to claim 11 wherein said non-ionic aliphatic ester resin is known commercially as Amberlite™ XAD-7HP.
13. The toxin removal device according to claim 11 wherein said non-ionic polystyrene divinyl benzene resin has an average surface area of approximately 700 m²/g with an average pore size of 300 Angstroms and a mean particle diameter from approximately 35 µM to approximately 120 µM.
14. The toxin removal device according to claim 9 or 10 wherein said charcoal comprises uncoated coconut shell granule charcoal
15. An extracorporeal circuit for removing toxins from the blood comprising:
 - a plasma filter, an activated charcoal contained in a first housing and a second housing having at least one non-ionic resin disposed therein.
16. The extracorporeal circuit according to claim 15 wherein said at least one non-ionic resin is a non-ionic aliphatic ester resin or a non-ionic polystyrene divinyl benzene resin or a combination thereof.

17. A method for removing toxins from blood comprising:

circulating the venous blood of a patient through an extracorporeal circuit having a toxin removal device disposed therein wherein said toxin removal device comprises activated charcoal and at least one non-ionic resin.

18. The method for removing toxins from blood according to claim 17 where in said venous blood is circulated through an extracorporeal circuit wherein said at least one non-ionic resin is non-ionic aliphatic ester resin or a non-ionic polystyrene divinyl benzene resin or a combination thereof.